

Amendments to the Claims:

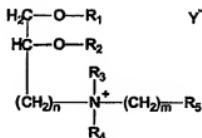
This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-67 (Canceled).

68. (Currently Amended) A method of delivering an anionic molecule into a cell, comprising:

(a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound according to the formula:

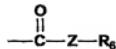


wherein R₁ and R₂ are identical and are selected from the group consisting of C₁₋₂₉H₂₉ and C₁₂H₂₅ independently H; linear or branched, unsubstituted or substituted C₁₋₂₃alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of -O-(CH₂)_k-CH₃, -S-(CH₂)_k-CH₃, and -X-(CH₂)_k, wherein X is a halide, and k is 0 to 4;

R₃ and R₄ are independently H; linear or branched, unsubstituted or substituted C₁₋₂₃ alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are

selected from the group consisting of $[-O-(CH_2)_k-CH_3]$, $-O-(CH_2)_k-CH_3$, $-S-(CH_2)_k-CH_3$, and $X-(CH_2)_k-$, wherein X is a halide, and k is 0 to 4;

R_5 has the structure



wherein Z is selected from the group consisting of O, S, NR₁, NH, [[and S]] and Se;

R_6 is selected from the group consisting of H, [[R₁, R₂]], R₃, and R₄, and, when Z is O, NH, NR₁, or S, R₆ can further be an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent, wherein Z is an atom of said amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent;

n is 1 to 6;

m is 1 to 10;

Y is a pharmaceutically acceptable anion; and

R_7 and R_8 independently or in combination are H or alkyl groups as defined for R₁ and

R_2 ;

wherein if Z is O, n is 1, and m is 3, then R₆ is selected from the group defined for R₃ and R₄ and wherein R₁ and R₂ are not both H; and

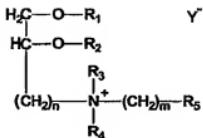
(b) contacting a cell with the lipid complex formed in step (a);

whereby a biologically effective amount of the anionic molecule is delivered into the cell[[;]] and wherein R₁ and R₂ are identical and are selected from the group consisting of C₁₄H₂₉ and C₁₂H₂₅.

Claims 69-70 (Canceled).

71. (Currently Amended) A method of delivering an anionic molecule into a cell, comprising:

(a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound according to the formula:

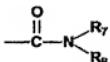


wherein

R_1 and R_2 are identical and are selected from the group consisting of $C_{14}H_{29}$ and $C_{12}H_{25}$ saturated or unsaturated C_{10} - C_{18} alkyl groups;

R₃ and R₄ are independently H; linear or branched, unsubstituted or substituted C₁₋₂₃ alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of $-\text{O}(\text{CH}_2)_k\text{-CH}_3$, $[\text{-0-(CH}_2)_k\text{-CH}_3,]$ -S-(CH₂)_k-CH₃, and X-(CH₂)_k-., wherein X is a halide, and k is 0 to 4;

R_5 has the structure:



R_7 and R_8 are independently selected from the group defined for $[[R_1, R_2]]$ R_3 and R_4 and one of R_7 and R_8 can further be an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent, wherein an amino nitrogen of said amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent is the N to which R_7 or R_8 is attached;

n is 1 to 6;

m is 1 to 10; and

Y is a pharmaceutically acceptable anion; and

- (b) contacting a cell with the lipid complex formed in step (a);
whereby a biologically effective amount of the anionic molecule is delivered into the cell.

72. (Canceled).

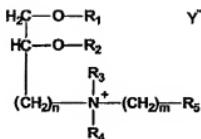
73. (Currently Amended) The method according to claim 71 [[72]], wherein R₃ and R₄ are selected from the group consisting of C₁-C₅ alkyl groups and C₁-C₅ heteroalkyl groups having one heteroatom therein.

74. (Previously Presented) A method according to claim 73, wherein R₃ and R₄ are methyl groups.

Claims 75-84 (Canceled).

85. (Currently Amended) A method of delivering an anionic molecule into a cell, comprising:

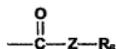
- (a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound according to the formula:



wherein R₁ and R₂ are independently H; linear or branched, unsubstituted or substituted C₁₋₂₃ alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of -O-(CH₂)_k-CH₃, [-0-(CH₂)_k-CH₃], -S-(CH₂)_k-CH₃, and X-(CH₂)_k-, wherein X is a halide, and k is 0 to 4;

R₃ and R₄ are independently H; linear or branched, unsubstituted or substituted C₁₋₂₃ alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of -O-(CH₂)_k-CH₃, [[-O-(CH₂)_k-CH₃,]] -S-(CH₂)_k-CH₃, and X-(CH₂)_k-, wherein X is a halide, and k is 0 to 4;

R₅ has the structure



wherein Z is selected from the group consisting of [[O, S,]] NR₁, and NH [[, and S]]; and

R₆ is selected from the group consisting of H, R₁, R₂, R₃, and R₄, and, when Z is O, NH, NR₁, or S, R₆ can further be an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent, wherein Z is an atom of said amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent;

n is 1 to 6;

m is 1 to 10;

Y is a pharmaceutically acceptable anion; and

R₇ and R₈ independently or in combination are H or alkyl groups as defined for R₁ and

R₂;

wherein if Z is O, n is 1, and m is 3, then R₆ is selected from the group defined for R₃ and R₄ and wherein R₁ and R₂ are not both H; and

(b) contacting a cell with the lipid complex formed in step (a);

whereby a biologically effective amount of the anionic molecule is delivered into the cell [[;]] and wherein Z is NH or NR₁.

86. (Currently Amended) A method of delivering an anionic molecule into a cell, comprising:

In Re the Application of:

Wheeler

Application No. 10/748,853

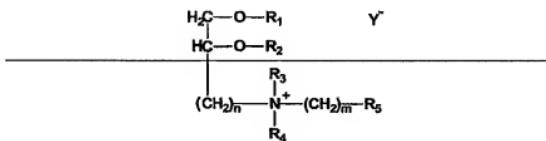
Filed: December 30, 2003

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Attorney Docket No.: CA1818

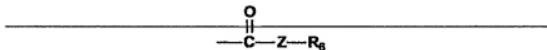
- (a) forming a lipid complex by contacting the anionic molecule with a composition comprising an effective amount of a compound according to the formula:



wherein R₁ and R₂ are independently H; linear or branched, unsubstituted or substituted C₁₋₂₃-alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of -O-(CH₂)_k-CH₃, -S-(CH₂)_k-CH₃, and X-(CH₂)_k-, wherein X is a halide, and k is 0 to 4;

R₃ and R₄ are independently H; linear or branched, unsubstituted or substituted C₁₋₂₃ alkyl, acyl, alkenyl, or heteroalkyl group having from 0 to 6 sites of unsaturation; or a cyclic or aryl group, said heteroalkyl, cyclic, and aryl groups comprising from 0 to 5 heteroatoms wherein said heteroatoms are not the first atoms in said groups, wherein the substituent groups are selected from the group consisting of -O-(CH₂)_k-CH₃, -S-(CH₂)_k-CH₃, and X-(CH₂)_k, wherein X is a halide, and k is 0 to 4;

R₅ has the structure



wherein Z is selected from the group consisting of O, S, NR₁, NH, and S;

R₆ is selected from the group consisting of H, R₁, R₂, R₃, and R₄; and, when Z is O, NH, NR₁, or S, R₆ can further be an amino acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent, wherein Z is an atom of said amino

acid, peptide, polypeptide, protein, mono-, di- or polysaccharide, or other bioactive or pharmaceutical agent;

n is 1 to 6;

m is 1 to 10;

Y is a pharmaceutically acceptable anion; and

R₇ and R₈ independently or in combination are H or alkyl groups as defined for R₁ and R₂;

wherein if Z is O, n is 1, and m is 3, then R₆ is selected from the group defined for R₃ and R₄ and wherein R₁ and R₂ are not both H; and

(b) contacting a cell with the lipid complex formed in step (a);

whereby a biologically effective amount of the anionic molecule is delivered into the cell; and wherein said compound is selected from the group consisting of DORIE carboxylate (dioleyl Rosenthal Inhibitor Ether carboxylate), DMRIE carboxylate (dimyristyl Rosenthal Inhibitor Ether carboxylate), DMRIE carboxylate propyl amide, DMRIE carboxylate (methionine-methylester) amide, DMRIE carboxylate (fmethionine (methionine-leucine-methylester)) amide, and DMRIE carboxylate (methionine-leucine-phenylalanine-methylester) amide.

87. (Currently Amended) The method according to claim 71, wherein R₇ and R₈ are independently selected from the group defined for [[R₁, R₂]] R₃, and R₄.

Claims 88-90 (Canceled).